Archival Copies of Thermofax, Verifax, and Other Unstable Records

by Norvell M.M.Jones
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[Web Version]

Electrostatic copying of certain unstable paper record materials may be the best way to ensure the survival of such records when they are encountered randomly in holdings.

To guarantee that the copies are as permanent as possible, the National Archives commissioned a study by the Government Printing Office (GPO) to determine the characteristics of archival quality electrostatic copying.

Since previous work had established the importance of paper quality in longevity, this study concentrated on toner composition and adhesion to the paper and on evaluation of the performance of selected machines.

The 1987 GPO report conclusions that have the most practical implications for archival work are summarized here:

1) Only toners containing carbon black should be used; this information is available from the manufacturer.

2) Copy machines should be well maintained to assure that they are operating at optimum temperature to fuse the toner. This means that a key operator should handle day to day maintenance and that routine service by a qualified service representative should be regularly scheduled.

3) To keep them from sticking together, copies should not be stacked horizontally and weighted at elevated temperatures; nor should they be placed in direct contact with vinyl or similar plastics (polyester film is safe) which make the toner sticky and capable of off-setting to adjacent surfaces. The GPO study did not elaborate greatly on this recommendation.

4) As only one of the fourteen machines tested by the GPO passed all evaluations, it is possible that some machines currently in use may not be suitable for archival copying; however, these tests were certainly not exhaustive in 1987 when the report was published, so it should not be concluded that only one suitable model existed then or now.

5) There is a peel test described in the study which can be used by any machine operator to determine if the machine is producing an archivally acceptable copy.

Based on this information, the following guidelines should be followed when electrostatic copies are made which will replace unstable records.

Before a machine is used initially for archival copying, it should be checked using the appended peel test. If it fails the test, the machine should be adjusted by the operator and/or by the equipment service person until it passes. If it cannot be satisfactorily adjusted to pass the test, it should not be used for archival copying; and the machine should be so marked.

The appended peel test can also be used to assist in evaluation of a machine to be purchased or leased for archival copying.

Only Archival quality copy paper that meets the requirements of ANSI/NISO Z39.48 standard *Permanence of Paper for Publications and Documents in Libraries and Archives*(available from NISO), and/or ASTM D3458 *Standard Specification for Copies from Office Copy Machines for Permanent Records* (available from ASTM), should be used. For product choices see The American Library Association's *Guidelines for Preservation Photocopying of Replacement Pages*
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At the beginning of each archival copying session, or daily if the machine is used continuously, the operator should check the copy quality using the peel test. Three tests should be completed and the predominant value used. If the machine is out of adjustment, it should not be used until it is adjusted and the copy passes the peel test.

Electrostatic copies that will substitute for the unstable originals should be marked with the following information in typed form: *Record Copy to Replace Unstable Original. Property of the National Archives,* or the text appropriate to your institution. It is important to identify the electrostatic copy as the permanent replacement for the unstable document and to show ownership, so that the copy is not inadvertently thrown or given away. To facilitate copying of multiple unstable documents, this information should be typed on a narrow strip of paper that can be taped face down on the glass platen surface of a copying machine.

If a single unstable document is being reproduced, it should be placed in a polyester sleeve after copying; the new copy on archival bond paper should be filed in front of the sleeved original. Alternatively, the unstable original may be discarded using whatever internal disposal procedure is practiced in your institution. If multiple documents are being copied, it is desirable after copying to segregate the unstable originals from the original files and store or dispose of them as appropriate.

TESTING ELECTROSTATIC COPY QUALITY: THE PEEL TEST

Materials needed:

1. 3M #230 Drafting Tape, 1 inch width (do not substitute)
2. Test Target. Open and print the target on a laser printer with at least 300 dpi resolution (set options to **enhanced**, and/or **fine**, and/or **dark**); the objective is to get solid, uniform blackness. Use the Adobe Portable Document Format version of the target: (target.pdf). The Adobe Acobat Reader is free. (If you are unable to print the target, send an email message to preserve@nara.gov to request a copy of the target.)
3. Archival quality copy paper that meets the requirements of ANSI/NISO Z39.48 standard *Permanence of Paper for Publications and Documents in Libraries and Archives* (available from NISO), and/or ASTM D3458 *Standard Specification for Copies from Office Copy Machines for Permanent Records* (available from ASTM), should be used. For choices see The American Library Association's Guidelines for Preservation Photocopying of Replacement Pages .

PROCEDURES

1.Turn on the machine. When it is ready, copy the test pattern onto XXV Xerox bond paper or equivalent. The original test pattern should be housed in a polyester sleeve for protection. When removing it from the sleeve, the operator should avoid touching the black areas to prevent finger printing.

2. Pull one inch of tape out from a roll. Do not cut or tear the tape yet. Fold the tape back (sticky side in to make a one-half inch non-sticky tab. Now, pull off three more inches of tape and cut or tear next to the roll. You should have a piece of tape, including the tab, that is about 3 1/2 inches long.

3. Apply the strip to the copy of the test pattern so that it covers as much of the black ring as possible.

4. Rub the tape flat onto the test pattern five or six times with all four fingers. DO NOT use your thumb or fingernails, repeat DO NOT use your thumb or fingernails.

5. Now, fold back the free end of the tape - that is the tab that you made - so that it lies flat against the rest of the tape. Peel the tape strip off the paper by sliding the free end of the tape over the rest of the tape while holding it flat against the page. This is an 1800 peel angle.

6. Look at the adhesive side of the tape strip. If the curved image of the test pattern can be detected at all, (that is, if any black image has transferred to the tape,) the copy fails the test.

7. Two out of three tests which show no transfer indicate that the machine is making archival copies.

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This version does not contain the preface regarding Technical Information Papers in general and the background study: GPO Jacket No. 484-988, Final Report, Archival Xerographic Copying, by Sylvia S.Y. Subt and John G. Koloski (August 25, 1987): 20 pages.